

REMARKS

The foregoing amendment does not include the introduction of new matter into the present application for invention. Therefore, the Applicant, respectfully, requests that the above amendment be entered in and that the claims to the present application be, kindly, reconsidered.

The Office Action dated November 16, 2004 has been received and considered by the Applicants. Claims 1-20 are pending in the present application for invention. Claims 1-20 are rejected by the November 16, 2004 Office Action.

Pages 13-14 of the specification have been objected to because of informalities. The foregoing amendment to the specification has corrected these oversights.

The Office Action rejects Claims 4 and 14 under the provisions of 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner states that Claims 4 and 14 recite the limitation "said applied rule" in line 4 and that there is insufficient antecedent basis for this limitation in these claims. The foregoing amendment to the claims has corrected these oversights.

The Office Action rejects Claims 1, 11, and 18 under the provisions of 35 U.S.C. §102(b) as being anticipated by Lorente et al. ("Face Recognition of Video Sequences in a MPEG-7 Context Using a Global Eigen Approach") (hereinafter referred to as Lorente et al.). The Examiner making the rejection with regard to Claims 1, 11, and 18 states that Lorente et al. disclose: training a classifier device for recognizing one or more facial images and obtaining corresponding learned models the facial images used for training, inputting a vector including data representing a portion of an unknown facial image to be recognized into said classifier, classifying said portion of said unknown facial image according to a classification method, repeating step b) and c) using a different portion of said unknown facial image at each iteration, and identifying a single class result from said different portions input to said classifier. Specifically the Examiner states that the step of repeating step b) and c) using a different portion of said unknown facial image at each iteration is disclosed in Section 4 of Lorente et al. The Applicants respectfully disagree. Lorente et al. do not teach or suggest an iterative process as defined by the rejected claims. The Applicants would like to, respectfully, point out that operates on the

entire face at one time. Therefore, this rejection is, respectfully traversed.

The Office Action rejects Claims 2-10, 12-17, 19, and 20 under the provisions of 35 U.S.C. §103(a) as being unpatentable over Lorente et al. in view of Gutta et al. ("Mixture of Experts for Classification of Gender, Ethnic Origin, and Pose of Human Faces") (hereinafter referred to as Gutta et al.).

Regarding Claims 7 and 17, the Examiner states that Lorente et al. do not teach implementing a Radial Basis Function Network. The Examiner further states that Gutta et al. disclose a classifying step implementing a Radial Basis Function Network trained for classifying inputs based on facial images. Claims 7 and 17 depend from Claims 1 and 11, respectively. Therefore, Claims 7 and 17 are believed to be allowable for the reasons previously stated for Claims 1 and 11.

Regarding Claim 8, the Examiner applies the arguments presented above for Claim 7. The Examiner further states that Gutta et al. disclose initializing the Radial Basis Function Network, the initializing step comprising the steps of: fixing the network structure by selecting a number of basis functions F , where each basis function I has the output of a Gaussian non-linearity; determining the basis function means μ_I , where $I=1, \dots, F$, using a K-means clustering algorithm; determining the basis function variances σ_I^2 and determining a global proportionality factor H , for the basis function variances by empirical search. The Applicants, respectfully, point out that Lorente et al. with Gutta et al., either alone or in combination, do not disclose or suggest the following features within rejected Claim 8: computing the $F \times F$ correlation matrix R of the basis function outputs; and computing the $F \times M$ output matrix B , where d_j is the desired output and M is the number of output classes and $j = 1, \dots, M$; and determining weights, the determining step comprising the steps of: inverting the $F \times F$ correlation matrix R to get R^{-1} ; and solving for the weights in the network. Claim 8 that defines subject matter for matrix algebra. Specifically, steps are performed using a correlation matrix. This is no correction matrix or manipulation of matrices taught or suggested by Lorente et al. or Gutta et al., either alone or in combination. Therefore, this rejection is, respectfully traversed.

Regarding Claim 9, the Examiner states that Gutta et al. disclose classifying a face image by computing the basis function outputs for all F basis functions; computing

output node activations; and selecting the output z_j with the largest value and classifying the image as a class j . The Applicants, respectfully, point out that Claim 9 depends from Claim 8 that defines subject matter for matrix algebra. Specifically, steps are performed using a correlation matrix. This is no correction matrix or manipulation of matrices taught or suggested by Lorente et al. or Gutta et al., either alone or in combination. Therefore, this rejection is traversed.

Regarding Claim 10, the Examiner states that the arguments analogous to those presented above for Claim 7 are applicable to Claim 10. The Applicants would like to, respectfully, point out that Claim 10 defines subject matter for the classifying step c) comprises outputting a class label identifying a class to which the detected unknown facial image portion corresponds to and a probability value indicating the probability with which the unknown facial image pattern belongs to the class. The foregoing subject matter is not taught or suggested by Lorente et al. or Gutta et al., either alone or in combination. Therefore, this rejection is traversed.

Regarding Claims 2, 12, and 19, the Examiner states that the arguments analogous to those presented above for Claims 7 and 10 are applicable to Claims 2, 12, and 19. The Applicants would like to, respectfully, point out that Claims 2, 12, and 19 define subject matter for at each iteration, comparing a portion of the unknown image against a corresponding portion of the learned model image for each class and obtaining a confidence score for each classified portion. The foregoing subject matter is not taught or suggested by Lorente et al. or Gutta et al., either alone or in combination. Therefore, this rejection is traversed.

Regarding Claims 3, 13, and 20 states that the arguments analogous to those presented above for Claim 2 are applicable to Claims 3, 13, and 20. The Examiner further states that Gutta et al. disclose applying a rule to said confidence score to obtain said single class result. The Applicants would like to, respectfully, point out that Claims 3, 13, and 20 recite subject matter for the identifying step e) to include applying a rule to said confidence scores to obtain said single class result. The Applicants, respectfully, request that the Examiner indicate a rule that is applied to confidence scores to obtain a single class result. The foregoing subject matter is not taught or suggested by Lorente et al. or Gutta et al., either alone or in combination. Therefore, this rejection is traversed.

Regarding Claims 4 and 14, the Examiner states that the arguments analogous to those presented above for Claims 2 and 3 are applicable to Claims 4 and 14. The Examiner further

states that Gutta et al. disclose that the confidence score is a probability measure that an image is identified with a class, said applied rule including obtaining a class having the majority of class labels determine for each unknown image. The Applicants, respectfully, deny this assertion contained within the Office Action that Gutta et al. disclose or suggest that the “confidence score is a probability measure that a current portion of an unknown facial image is identified with a class, the applied rule including identifying class having majority of class labels determined for each unknown facial image.” The foregoing subject matter is not taught or suggested by Lorente et al. or Gutta et al., either alone or in combination. Therefore, this rejection is traversed.

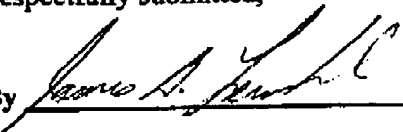
Regarding Claims 5 and 15 states that Lorente et al. disclose decreasing at each iteration the portion of the unknown image being tested and comparing the decreased portion of the unknown image against a corresponding decreased portion of the learned model image for each class. The Applicants would like to, respectfully, point out that there is no disclosure, or suggestion, within Lorente et al. for decreasing at each iteration the portion of the unknown image being tested and comparing the decreased portion of the unknown image against a corresponding decreased portion of the learned model image for each class. The foregoing subject matter is not taught or suggested by Lorente et al. or Gutta et al., either alone or in combination. Therefore, this rejection is traversed.

Regarding Claims 6 and 16, the Examiner states that Lorente et al. disclose that the portions are decreased at various increments and references Fig. 1 of Lorente et al. The Applicants, respectfully point out that Fig. 1 of Lorente et al. do not disclose, or suggest, that the portions are decreased at various increments. Fig. 1 of Lorente et al. simply present different features of various portions of the human face, referred to as “eigenfeatures”. There is no disclosure or suggestion for decreasing the portions at various increments Lorente et al. The foregoing subject matter is not taught or suggested by Lorente et al. or Gutta et al., either alone or in combination. Therefore, this rejection is traversed.

Applicant is not aware of any additional patents, publications, or other information not previously submitted to the Patent and Trademark Office which would be required under 37 C.F.R. 1.99.

In view of the foregoing amendment and remarks, the Applicant believes that the present application is in condition for allowance, with such allowance being, respectfully, requested.

Respectfully submitted,

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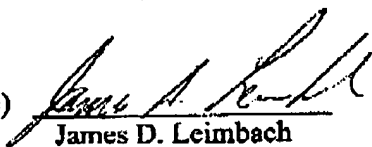
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